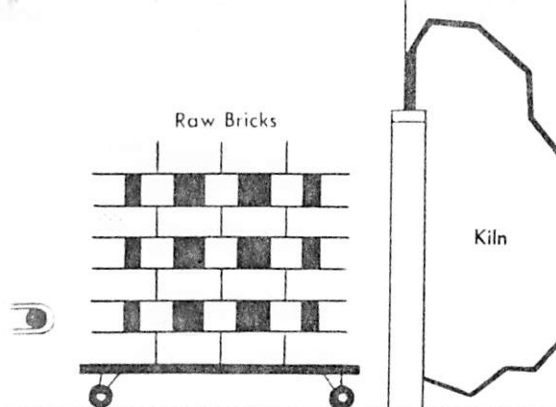


cost more. Builders find them suitable for swimming pools and other places where wall tile might be used.

Sizes. At one time, bricks were made in various sizes and shapes, depending on the locality in which they were made. In the United States the standard size for common brick is $2\frac{1}{4}$ inches (5.7 centimeters) thick, $3\frac{3}{4}$ inches (9.5 centimeters) wide, and 8 inches (20 centimeters) long. Bricks cast to specified sizes and shapes are called *molded bricks* and are used for ornamental purposes, such as window trim, moldings, arches, and chimneys.

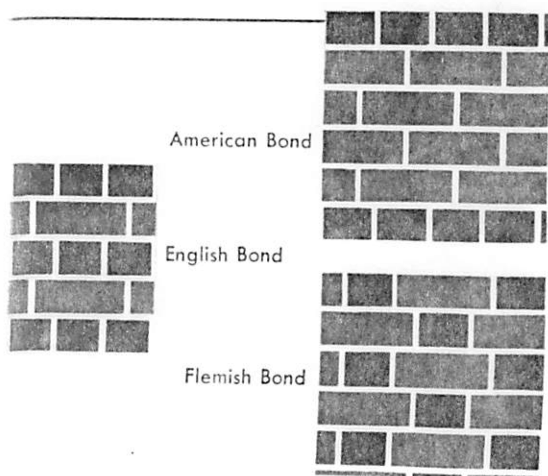
Bricklaying

Bricks usually are laid on their flat sides to form *courses* (horizontal layers) separated by *mortar joints* from $\frac{1}{8}$ to $\frac{1}{2}$ inch (3 to 13 millimeters) thick. A *bricklayer*, who puts the bricks in place, is assisted by a *hod carrier*, who delivers bricks and mortar to the bricklayer. The construction formed is called *brickwork* or *brick masonry*.

Bonding. Bricks are arranged so that they lap over each other to stagger the vertical joints. Thus, it is possible to distribute loads over a large area. The various arrangements are called *bonds*. Bricks laid with the ends exposed are called *headers*. Those laid with the sides exposed are called *stretchers*. The various bonds consist of different arrangements of headers and stretchers.

In *running bond* (*stretcher bond*), all the bricks are stretchers. *Common bond* (*American bond*) consists of four to six stretcher layers between single header layers. *English bond* consists of alternate courses of headers and stretchers. The joints in alternate courses line up vertically. In *Flemish bond*, each course consists of alternate headers and stretchers, with the headers centered on the stretchers of the courses above and below.

Mortar is used between bricks to form joints. The mortar secures an even bearing, holds the bricks in position, and makes a tight wall. The mortar usually contains portland cement for strength, hydrated lime for workability, sand for economy and volume, and water for workability and the necessary chemical reactions. A commonly used mortar consists of one part portland cement, one part hydrated lime, six parts sand, and enough water to make the mixture soft and workable. See CEMENT AND CONCRETE.



Preserving Brick

Brick construction will last hundreds of years if satisfactory materials and construction methods have been used. The brick also must be cared for properly. Weather will wear away the mortar from the joints and they should be repaired periodically. An unsightly whitish discoloration, known as *efflorescence*, sometimes appears on the brick. Efflorescence results when salts from within the brick and mortar are carried to the surface by water. The water evaporates, but the salts remain and cause the brick to chip and crumble. The deposits can be removed by scrubbing with diluted hydrochloric acid solution, then rinsing with plain water.

History

Brick is the oldest manufactured building material. Sun-dried brick was used in the Middle East by 6000 B.C. The chief occupation of the Israelites during their captivity in Egypt was making sun-dried brick from clay taken from the Nile River. In the United States, bricks were made in Virginia as early as 1612. Until the 1900's, brick was used to pave streets and sidewalks, and to build chimneys for industrial plants. But bricks have largely been replaced by concrete and asphalt for paving, and by steel for chimneys. GEORGE W. WASHA

See also ADOBE; BUILDING TRADE; CLAY.